

REMARKS

The Office Action dated May 22, 2002 has been carefully considered and this application has been amended in a manner which it is believed places it in condition for allowance. Accordingly, reconsideration of this application and allowance of all pending claims is respectfully requested.

The specification has been amended on page 2, paragraph 1 (lines 1-3) to identify the status of the parent application, from which the present application claims priority to, as having been issued as U.S. Pat. No. 6,026,563 on February 22, 2000.

Figures 18-23 are objected to for failing to provide the proper cross-hatching which indicates the type of material being used in the invention. Amended drawings are provided herewith, with changes marked in red, to properly cross-hatch the figures. It is therefore respectfully requested that the objection to the drawings be withdrawn.

The Abstract is objected to because lines 4-5 are confusing. The Abstract has been amended to make lines 4-5 more clear and understandable. It is therefore respectfully requested that the objection to the Abstract be withdrawn.

Claims 1-79 are pending in the application. Claims 31-79 have been withdrawn from consideration as being drawn to a non-elected invention.

Claims 1, 10, 11, 15, 18-21 and 30 are objected to for containing minor informalities, specifically, for failing to include "the" or "said" after "wherein." The claims have been amended to insert --the-- after "wherein" to place the claims in better form. It is therefore respectfully requested that the objections to the claims be withdrawn.

Claims 1, 2, 6, 9, 11, 13, 15, 22, 23, 25 and 30 are rejected under 35 U.S.C. § 102(b) as being anticipated by Hara (U.S. Pat. No. 5,250,127). Claims 3, 4, 7, 8, 12, 16, 17 and 18-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hara in view of Richter (U.S. Pat. No. 3,168,617). Claims 5, 24, 28 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hara in view of Huber (U.S. Pat. No. 4,952,020). Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hara in view of Love (U.S. Pat. No. 3,239,916). Claims 26 and 27 are rejected under 35 U.S.C. § 103(a) over Hara in view of Coon (U.S. Pat. No. 4,780,157).

The rejection of claims 1, 2, 6, 9, 11, 13, 15, 22, 23, 25 and 30 under 35 U.S.C. § 102(b) as being anticipated by Hara are respectfully traversed. Hara discloses a conventionally fabricated flat cable with the addition of a secondary strip that is co-located with one of the conductors. The strip is torn away, exposing the underlying conductor, and an additional shielding layer is bonded to the cable and in turn connects to the exposed conductor. The focus of Hara is the use of the tearaway strip and subsequently applied metallic shield layer. All of the fabrication techniques used to effect this invention are the same as conventional prior art flat cables.

Claim 1 recites that the conductors have no adhesive residue on thereon. The Examiner appears to have mistakenly interpreted Hara as disclosing conductors having no adhesive residue in col. 3, lines 61-68 of Hara. Although the Examiner cited col. 3, lines 61-68, it seems that the relevant passages are in col. 4, lines 61-68. In col. 4, lines 61-68, Hara discloses that the “conductor 4 and shield layer 40 are affixed in certain areas by using an adhesive agent.” Applicant’s claim 1 requires that no adhesive agent is used, while Hara clearly discloses that an adhesive agent is used. Therefore, the invention of Hara does not meet the limitation of claim 1.

Additionally, it is unclear whether the Examiner was relying on the prior art disclosed in Hara, particularly Fig. 3, in attempting to show the lack of an adhesive agent. However, Fig. 3 and its description in the background of the invention does not disclose how the conductors and the insulation tape are attached. Therefore, the prior art of Hara also does not disclose the limitations of claim 1.

Claim 1 also recites that the seams have a “textured surface pattern” and the seams along the edges of the flat electrical cable have a “substantially smooth surface pattern.” The Examiner stated that Hara disclosed a “textured surface pattern (denoted as 25)”. The Applicant respectfully disagrees with the Examiner and believes that Hara does not disclose a textured surface pattern. The Applicant has reviewed Hara and could not find any disclosure of a textured pattern, nor the reference numeral 25. It may be that the Examiner mistakenly understood the welded part 50, shown in Fig. 11, as a textured surface pattern. However, reference numeral 50 is disclosed as a welded part in col. 5, line 45, and not a textured surface. Therefore, Hara does not disclose a textured surface pattern nor does it disclose the combination

of a textured surface pattern with a smooth surface pattern on the edges of an electrical cable. For these reasons, claim 1 is believed to be allowable.

Claim 6 recites that the seams are ultrasonically welded. The Examiner states that this method limitation does not add any patentable or distinguishable structure to the claim. The Applicant respectfully disagrees. The fact that the seams are ultrasonically welded means that the seams are not attached using adhesives, fasteners, or other structural means. The difference between an ultrasonic weld and an adhesive attachment is structural in nature. Therefore, the claimed recitation of an ultrasonic weld imputes structural limitations into the claim. Since this limitation is not found in Hara, claim 6 is believed to be allowable.

Claim 13 recites a continuous seam except for a nonbonded area where the upper and lower layers are not connected. The Examiner states that reference numeral 40 is for a seam having a nonbonded area between an upper and lower layer. Reference numeral 40 is disclosed in Hara as a shield layer, and not a seam, as required by the claim. Additionally, Hara discloses that an adhesive may be applied “in certain places” (col. 7, lines 10-15) to provide greater flexibility to the adhesive. Hara does not disclose that the adhesive agent should not be placed at the seam area, as required by the claim, nor does Hara disclose any specifics as to where the adhesive agent may be placed – Hara merely states “in certain places.” Because Hara does not disclose a continuous seam except for a nonbonded area where the upper and lower layers are not connected, claim 13 is believed to be allowable.

Claim 15 recites that the seams have a knurled textured surface. For the reasons recited above with respect to claim 1, claim 15 is also believed to be allowable.

Claim 22 recites a flat cable with conductors not having an adhesive residue thereon. For the reasons recited above with respect to claim 1, claim 22 is also believed to be allowable.

Claim 30 is similar to claim 1, and for the reasons claim 1 is believed to be allowable, claim 30 is also believed to be allowable.

The rejection of claims 3, 4, 7, 8, 12, 16, 17 and 18-21 under 35 U.S.C. § 103(a) as being unpatentable over Hara in view of Richter are respectfully traversed. Insofar as these claims are dependent upon or are similar to the above traversed claims, these claims are also believed to be allowable. In particular, independent claim 18 and 21 contain limitations similar to those found

in claim 1 and 6, which were not disclosed by Hara, such as the textured surface and seams that are ultrasonically welded, and for those reasons, claims 18 and 21 are believed to be allowable.

Claim 17 recites an electric cable having a linear density of substantially 4.35 grams per foot, as described in the specification on page 20, line 16 thru page 21, line 8. The linear density as recited in the claim is weight per length (grams per foot) and not weight per volume, as interpreted by the Examiner. Additionally, the Examiner appears to have mistakenly interpreted the claim to mean that the linear density is substantially *less* than 4.35 grams, whereas the claim recites that the linear density *is* substantially 4.35 grams per foot. Because Hara and Richter do not disclose this limitation, claim 17 is believed to be allowable.

Because independent claims 1, 18, 21, 22, and 30 are believed to be allowable for the reasons cited above, dependent claims 2-17, 19, 20, 23-29 are also believed to be allowable for those same reasons.

Additionally, Applicants request clarification for certain statements made in the Office Action. Several of the Examiner's rejections recite reference numerals which are not found in the applied reference (see rejection of claim 1, reference numeral 25) or are different than what the Examiner asserts them to be (see rejection of claims 6 and 11, reference numeral 30 and rejection of claim 13, reference numeral 40). Additionally, the Examiner's rejection of claim 3 states that Hara discloses seven conductors, however, claim 3 recites that the upper and lower layer are made of polyester. Claim 3 does not claim a cable having seven conductors and it is unclear why the Examiner made this statement. Also, claim 8 recites at least one seam along an edge of the cable which is produced by a broad protrusion on an ultrasonic welding anvil. The secondary reference of Richter does not disclose this features, and it is unclear how the combination of Hara and Richter discloses claim 8. If these rejections are maintained, which Applicant believes is not warranted, clarification on these points is requested.

New claims 80-84 have been added to further recite novel features of the present invention. Specifically, new claims 80-84 recite that the electric cable has an upper layer with a plurality of raised surfaces and a lower surface that is substantially planar. These features are not shown in any of the applied references, and therefore are believed to be allowable.

In view of the aforementioned amendments and remarks, favorable consideration of this application is respectfully requested, and a Notice of Allowance for claims 1-30 and 80-84 is respectfully requested. Should the Examiner have any questions or comments, the Examiner is cordially invited to telephone the undersigned attorney, so that the present application can receive an early Notice of Allowance.

In the event that a petition for an extension of time is required to be submitted herewith and in the event that a separate petition does not accompany this response, Applicant hereby petitions under 37 CFR 1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized above. Please charge any shortage or credit any overpayment of fees to BLANK ROME COMISKY & McCAULEY LLP, Deposit Account No. 23-2185 (115584-00287).

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES

In the Specification:

Page 2, paragraph 1 (lines 1-3) has been amended as follows:

--This application is a continuation-in-part application of co-pending U.S. Application Serial Number [No.] 05/627,136 filed April 3, 1996, now U.S. Patent Number 6,026,563, and claims priority to and hereby incorporates herein by reference the same.--

In the Abstract

--A flat electrical cable and a modular rotary anvil for assembling a flat electrical cable is provided wherein the flat cable includes an upper and lower layer, the upper layer having ribs protruding along its length and substantially parallel to one another, and continuous substantially parallel and adjacent seams formed therebetween. [and upper an lower insulator layer] [c]Conductors are placed between the upper and lower layers adjacent the seams [and a pattern formed in the surface of the lower insulator layer]. The present invention may have upper and lower polyester layers having copper conductors therebetween and the seams ultrasonically welded in order to provide a flat electrical cable for various applications such as incorporation in an automobile clockspring. The modular rotary anvil includes multiple removable and interchangeable segments or inserts which provide the ability to impart a smooth or knurled textured surface pattern to the work-piece. Other inserts include cutting inserts which provide for a seam on the work-piece while a the same time cuts the work-piece along a seam.—

In the Claims:

1. (Amended) A flat electrical cable comprising:
an upper insulator layer;
a lower insulator layer connected to the upper layer along substantially continuous parallel spaced seams; and

an intermediate layer comprised of individual strands of conductors which lie adjacent and substantially parallel to the seams, [and] wherein the conductors do not have an adhesive residue thereon, wherein the seams positioned between adjacent conductors have a textured surface pattern, and wherein the seams positioned along edges of the flat electrical cable have a substantially smooth surface pattern.

10. (Amended) The flat electrical cable of Claim 1 wherein the seams positioned along edges of the flat electrical cable are broader than seams positioned between adjacent conductors.

11. (Amended) The flat electrical cable of Claim 1 wherein the seams positioned along edges of the flat electrical cable are cut so as to form a smooth edge thereon.

15. (Amended) The flat electrical cable of Claim 1 wherein the seams positioned between adjacent conductors have a knurled textured surface pattern.

18. (Amended) A flat electrical cable comprising:
an upper layer of polyester having a ribbed surface;
a lower layer of polyester connected to the upper layer along substantially continuous parallel space apart ultrasonically bonded seams; and
individual strands of copper conductors lying substantially parallel and adjacent to the seams between the upper and lower layers, [and] wherein the seams positioned between adjacent conductors have a textured surface pattern, and wherein the seams positioned along edges of the flat electrical cable have a substantially smooth surface pattern.

19. (Amended) The flat electrical cable of Claim 18 wherein the seams positioned between adjacent conductors have a knurled textured surface pattern.

20. (Amended) The flat electrical cable of Claim 18 wherein the seams positioned between adjacent conductors have a repeating linear segment textured surface pattern, wherein

the repeating linear segments are substantially perpendicular to a length of the flat electrical cable.

21. (Amended) A flat electrical cable comprising:
an upper layer of polyester having a ribbed surface;
a lower layer of polyester connected to the upper layer along substantially continuous parallel space apart ultrasonically bonded seams; and
individual strands of copper conductors lying substantially parallel and adjacent to the seams between the upper and lower layers, [and] wherein the seams positioned between adjacent conductors have a textured surface pattern, [and] wherein the seams positioned along edges of the flat electrical cable have a first zone and a second zone, and wherein
the first zone is adjacent to one conductor of the conductors and extends substantially parallel to the one conductor, and the first zone having a knurled textured surface pattern, and where
the second zone is located between the first zone and one edge of the edges, and the second zone having a smooth textured surface patterns.

30. (Amended) A flat electrical cable comprising:
an upper insulator layer;
a lower insulator layer connected to the upper layer along substantially continuous parallel spaced apart seams; and
an intermediate layer comprised of individual strands of conductors which lie adjacent and substantially parallel to the seams, and the conductors do not have an adhesive residue thereon, wherein the seams positioned between adjacent conductors have a first textured surface pattern, and wherein the seams positioned along edges of the flat electrical cable have a second surface pattern, and wherein a surface roughness of the first textured surface pattern is greater than a surface roughness of the second textured surface pattern.